

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Amendments shown by strikethrough (for deleted matter) or underlining (for added matter).

1. (previously presented): A thickness shear mode piezoelectric resonator for use in a sensor arrangement for detecting or measuring an analyte in a medium, comprising: a quartz crystal plate having a first crystal surface and a second crystal surface, wherein

said first crystal surface comprises a first electrode having a surface area of less than 15 mm²;

said second crystal surface comprises a second electrode.

2. (previously presented): The resonator of claim 1, wherein the surface area of the first electrode is less than 10 mm².

3. (previously presented): The resonator according to claim 1, wherein the surface area of the first electrode is at least 0.05 mm².

4. (previously presented): The resonator according to claim 1, wherein the surface area of the first electrode is smaller than the first crystal surface.

5. (previously presented): The resonator according to claim 1, wherein the distance from the sensing electrode edge to the crystal edge is at least 0.2 mm.

6. (previously presented): The resonator according to claim 1, wherein the first electrode has a rectangular-shaped surface, having a first side and a second side

7. (previously presented): The resonator according to claim 1, wherein the first side is at least 0.1-10 times as long as the second side.

8. (previously presented): The resonator according to claim 1, wherein the first crystal surface is provided with a first contacting area connected to the first electrode; and the second crystal surface is provided with a second contacting area connected to the second electrode.

9. (previously presented): The resonator of claim 8, wherein the first electrode has a first side and a second side; and the first contacting area is connected to the second side of the first electrode.

10. (previously presented): The resonator according to claim 1, wherein the first crystal surface and the second crystal surface are flat.

11. (previously presented): The resonator according to claim 1 , wherein the quartz crystal is an inverted mesa.

12. (previously presented): The resonator of claim 11, wherein the quartz crystal plate comprises a first recess having a wall and a bottom surface and a first electrode in the first recess; the area of the bottom surface is larger than the first electrode; and the first electrode is arranged in the recess such that there is a distance between the electrode and the recess wall.

13. (previously presented): The resonator of claim 11, wherein the shortest distance from the electrode to the recess wall is at least 0.01 mm.

14.-22. (cancelled)

23. (previously presented): A method of sensing or measuring; comprising using a thickness shear mode resonator according to claim 1 to sense or measure.
24. (previously presented): The method according to claim 23, wherein the resonator is used to sense or measure of liquid samples.
25. (previously presented): The resonator according to claim 1, wherein the surface area of the first electrode is 1-5 mm².
26. (previously presented): The resonator according to claim 4, wherein the first electrode has a surface area that is 0.1-90% of the crystal area.
27. (previously presented): The resonator according to claim 5, wherein the distance from the sensing electrode edge to the crystal edge is at least 1 mm.
28. (previously presented): The resonator according to claim 27, wherein the distance from the sensing electrode edge to the crystal edge is at least 2 mm.
- 29-37. (cancelled)